
**EXPERT DECLARATION OF DWIGHT CREVELT ON TECHNOLOGY
BACKGROUND AND MEANING OF CLAIM TERMS SET FORTH IN
U.S. PATENT NO. 7,736,233**

Pursuant to 28 U.S.C. § 1746, I, Dwight E. Crevelt, declare as follows:

1. I have been retained by Hill, Kertscher & Wharton, LLP, the law firm representing the Plaintiffs, including patent owner Savvy Dog Systems ("Savvy Dog"), in the case styled as *Savvy Dog Systems, LLC and POM of Pennsylvania, LLC v. Pennsylvania Coin, LLC and PA Coin Holdings, Inc.*, pending in the United States District Court for the Middle District of Pennsylvania as Civil Action No. 3:19-cv-01470-JPW. I have been retained to provide certain background and opinions concerning various gaming device technologies and construction of disputed claim terms found in U.S. Patent No. 7,736,223 ("the '223 Patent"), which is generally directed to an electronic game terminal and noted to have a utility patent filing date of June 30, 2006. I base this declaration on my personal knowledge of the facts set forth below and my education and years of experience in the field of design and operation of gaming machines and systems, as detailed below.

2. I am over the age of 18 and make this Declaration based upon personal knowledge, experience, and investigation that I have conducted. I will be available, if necessary, to provide oral testimony concerning my statements, opinions and conclusions set forth below and may amplify or add thereto through such testimony, demonstratives, or in further written declarations.

3. I am not, and never have been, an employee of Plaintiffs or any of their affiliates, or any of the Defendants, and I am not a patent attorney or agent.

4. In reaching the conclusions described herein, I have considered the documents and materials identified in Appendix A, attached to this declaration. My opinions are further based upon my education, training, research, publications, knowledge, and personal and professional experience in the relevant art.

I. BACKGROUND AND QUALIFICATIONS

5. I am an expert in the field of design and operation of electronic gaming machines and systems.

6. I am the founder and presently president of Crevelt Computer System, Inc., a gaming business consulting and engineering development company that is located and incorporated in Las Vegas, Nevada. I founded Crevelt Computer in 1977. Although I discuss my expert qualifications in more detail below, I also attach as **Exhibit A** a recent and complete curriculum vitae, which details my educational and professional background.

7. My formal, post-high school education started at the University of Las Vegas in 1973. I continued my education at the U.S. Naval Academy from 1975 to 1977. I then attended Iowa State University, where I received my Bachelor of Science degree in Computer Engineering in 1979.

8. My professional experience in the casino gaming industry started in 1974, when I joined Gamex Industries as a software engineer. As a software engineer, I designed and developed casino game management systems, including an on-line slot accounting and monitoring system, and I also maintained Gamex's on-line casino table game accounting system. I was also responsible for maintaining the system that monitored the play of table games and slot machines as installed in Caesar's Palace, Las Vegas.

9. In 1977, I started my own consulting company, Crevelt Computer System, Inc., and near the end of 1977 I worked at United Audio Visual as a software engineer developing audio/video controllers for multimedia shows.

10. From 1979 to 1980, I continued to work in the gaming industry as a computer engineer for Sircoma (later becoming IGT). At Sircoma, I developed various gaming machines, including video Poker, video Blackjack, video Red Dog and Whirlwin. I also had responsibility for maintaining the software for the video slot machines. I also acted as a technical gaming control liaison, which involved providing the Nevada Gaming Control Board staff with technical information regarding the company's gaming devices. The Nevada Gaming Control Board regulates the gaming industry in Nevada, overseeing the licensing and compliance of casinos as well as manufacturers and the equipment used in gaming.

11. In 1981, I worked for Mills-Jennings as a Director of Corporate Research. In this role, I assembled and supervised a research and development team that designed a complete line of video casino gaming machines and an on-line casino accounting system.

12. From 1984 to 1986, as a consultant with Crevelt Computer System Inc., I worked with Electronic Data Technologies, where I designed and developed the first complete on-line Player Tracking System.

13. From 1988 to 1996, I worked for Electronic Data Technologies (EDT) and International Game Technologies (IGT). I was responsible for design, development and implementation of player tracking and accounting systems for casino games. Specifically, I was responsible for the development, deployment and support for over 150 installations of the SMART system and the first cashless system utilized by Caesar's Palace, Las Vegas. In 1995, I was promoted to Product Manager for Cashless Applications. In this role, I prepared business

plans and strategies for implementing cashless gaming products, including IGT's first SMART card-based cashless gaming system installed at SBM in Monte Carlo. I also spent time evaluating casino-related intellectual property, particularly patents, especially those pertaining to cashless gaming and progressive systems.

14. As a consultant with Crevelt Computer Systems, I have worked with many gaming equipment manufacturers on the design and development of electronic slot machines, video games, Keno and Bingo systems. I also have provided independent laboratory analysis of games for regulators in New South Wales, Australia and the state of Mississippi. Additionally, I have conducted mathematical analyses for casino gaming devices.

15. From 1998-2013, Crevelt Computer System was a Partner in FootTraffic Promotional Gaming LLC. As a Partner with FootTraffic Promotional Gaming LLC, I have designed, developed, managed and marketed a series of promotional games for casinos, retailers and trade shows. These are free-play games that are designed to bring or attract patrons to the casino with an opportunity to win cash and prizes. These games have been very successful and several have been incorporated into permanent promotions at several casinos, including Peppermill Casino (Reno), Casino Fandango (Carson City), and Silver Legacy (Reno).

16. In sum, I have over forty years of engineering and management experience in the gaming industry, both as a consultant and an employee. During this time, I have worked extensively with original equipment manufacturers (OEMs), casinos, casino gaming regulators and agencies worldwide, including the Nevada Gaming Control Board.

17. I am also the co-author of two books that relate to the casino gaming industry – Slot Machine Mania and Video Poker Mania – which were still in publication twenty years after they were first published.

18. Additionally, I have been interviewed for numerous magazines, radio programs and television shows regarding gaming machines and the casino industry, including appearances on Secrets Revealed (a documentary on The Learning Channel) and High Rollers (a documentary on the Discovery Channel).

19. Throughout my career, I have kept up to date with the latest developments in gaming by subscribing to, for example, casino-related trade publications and attending various gaming shows.

20. In addition, I am a named inventor on six United States patents related to casino gaming systems (i.e., cashless and progressive gaming systems).

21. A list of cases for which I have provided expert testimony in the last four years is attached as **Exhibit B**. Crevelt Computer System, Inc. is being compensated for my work in this matter at a standard hourly rate, regardless of the opinions and statements expressed herein. My hourly rate is \$400. Neither I nor Crevelt Computer System, Inc. has any interest in the outcome of this matter.

II. PERSON OF ORDINARY SKILL IN THE ART

22. I understand that several factors are relevant to determining the level of ordinary skill in the art at the time of the claimed invention. I understand that those factors include: (1) the educational level of the inventor(s); (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.

23. The art of the '223 patent is described in the Background section as “related generally to amusement and entertainment electronic gaming and, more particularly, to a method and system for providing a game preview display to players of an amusement or entertainment

electronic game before playing the game.” (‘223 Patent, Col. 1, lines 13-17).

24. To understand the ‘223 patent, a POSITA in mid-2006 would have an understanding of computer science, electronic gaming and game design.

25. I understand that Michael Pace is the named inventor on the '223 patent. My further understanding relating to Mr. Pace is as follows:

Pace-O-Matic continues as one of the industry’s most reliable, enduring manufacturers. It is the lesson of Pace’s history: from teenage chess champion to the holder of five U.S. patents; from the inventor of the first countertop video to fathering video game manufacturing in Georgia; for 44 years and more than 70,000 hours designing and programming games; the scientist, engineer, entrepreneur and prolific inventor assures coin-operated game operators an ongoing stream of the highest earning, legally operated games.

<https://www.linkedin.com/in/michael-pace-28b761b5/>

26. In 1980, Mr. Pace designed the Little Casino bar-top game, which debuted as the first gaming counter-top ever invented, becoming a top-seller.

<https://www.paceomatic.com/about>

27. In 1984, Mr. Pace launched Cowboy Casino with laser tech. It was the first truly interactive videodisc-based, coin-operated game. *Id.*

28. In 1986, Mr. Pace left Digital Controls to establish US Games. *Id.*

29. In 1989, Mr. Pace developed Turbo 340, a bitmap graphics controller board. *Id.*

30. In 1990, Mr. Pace created the world's first electronic pull tab gaming system, called Pot of Gold. In 1994, Pot-O-Gold was the first game terminal installed in Foxwoods Casino in Connecticut. *Id.*

31. Mr. Pace subsequently founded Pace-O-Matic and continued to design electronic game systems, including Tic-Tac-Fruit. *See* POM000499-500 (Pace Affidavit and Background). By 2006, Mr. Pace was an accomplished game designer and innovator with over twenty-five

years of experience in the field.

32. There are a number of problems encountered in the field of electronic gaming. These problems are discussed herein to a certain extent and in the background of the art, and include things such as the complexities of rendering video graphics that are lifelike, avoiding player boredom, managing ever-increasing numbers of game combinations, and administering payouts. The prior art demonstrates that there is a great deal of overlap in design elements and features. For example, many references in the prior art present an array of game symbols on the screen for a user to see, and present a game terminal with player input buttons, a bill acceptor, audio speakers and a circuit board comprising the game processor.

33. Considering the above, as well as my career-long interactions with active workers in the field, and familiarity with their educational levels and their years of professional experience, it is my opinion that at the time of the invention of the asserted claims of the patent in suit, a person having ordinary skill in the art would be a person who has a bachelor's degree in computer engineering, computer science or similar field of study, and at least 3 years of professional experience as an engineer designing and developing games for a gaming company. I should note that elevated work experience could take the place of a certain amount of education, and vice-versa.

34. As a result of my education and experience attained by June of 2006, I am qualified to testify as a person of ordinary skill in the art in this case.

35. Unless noted otherwise, when I state that something would be known or understood by one skilled in the art, or a skilled artisan, or a person having ordinary skill in the art ("POSITA"), I am referring to a person with the foregoing level of education and/or experience in or around March-June 2006, the time frame in which the provisional patent

application (March) and utility patent application (June) were filed, leading to the issuance of the '223 Patent.

III. CLAIM CONSTRUCTION

36. I am not an attorney, nor am I an expert in patent law. Counsel has advised me, and I therefore understand, that a patent must conclude with one or more claims that particularly point out and distinctly claim the subject matter which the applicant regards as his/her invention. Counsel has further advised me, and I therefore understand, that Plaintiffs assert that the Defendants have, through the making, selling and/or using of certain electronic game terminals in the U.S., infringed upon at least claims 44 and 51 of the '223 Patent.

37. I have been an expert in prior patent cases where claim construction was an issue. Counsel has advised me, and I therefore understand, that claim terms are to be construed identically regardless of whether infringement or invalidity analysis is being performed and that claim terms are examined through the viewing glass of a POSITA.

38. In construing a claim term, counsel has advised me, and I therefore understand, that the Court begins with the language of the claims themselves. Counsel has further advised me, and I therefore understand, that the context in which a term is used in the asserted claim can be highly instructive, and claim terms are normally used consistently throughout the patent.

39. Counsel has advised me, and I therefore understand, that the words of the claim are assigned their plain meaning as understood by a POSITA at the time of the patent application, unless the plain meaning is inconsistent with the specification.

40. Counsel has advised me, and I therefore understand, that the patent specification, as read and understood by a POSITA, must be considered in assessing claim scope, and, like the claim language in the context of the claim, is often considered the best source for discerning the

proper context, scope and meaning of the claims.

41. Counsel has advised me, and I therefore understand, that the patent's file history often lacks the clarity of the specification and thus is less useful for claim construction purposes, but regardless, should also be considered, at least to confirm that the inventor(s) did not deviate from the ordinary and customary meaning of claim terms to gain allowance of the claim.

42. I have read the '223 Patent, including the drawings, written specification and claim. I have also read the prosecution file history. I offer an explanation of background to the patent and how a POSITA would understand the '223 Patent at or about the time that the patent applications were filed leading to the patent's issuance.

IV. THE PRIOR ART BACKGROUND AND THE '223 PATENT

43. I have reviewed the '223 Patent. I have also reviewed the file history for the '223 Patent. *See, e.g.*, Appendix A. As I understand it, the prosecution history provides evidence of how both the Patent Office and the inventor understood the invention and certain terms of the patent, particularly in light of what was known in the prior art.

44. The '223 Patent resulted from the filing of U.S. Provisional Patent Application No. 60.788,363, filed March 31, 2006, Continuation-in-part Application No. 11/430,770, filed May 9, 2006, and Utility Patent Application No. 11/428,026, filed June 30, 2006. Therefore, in discussing the '223 Patent as understood from the perspective of a POSITA, I will base my understanding and analysis on the way a POSITA would have read the '223 Patent in and around the March-June 2006 time period.

A. Background

45. The early 2000's saw dramatic changes in the gaming industry. Computer technology had advanced due in part to the evolution of game processor clock speed for

instruction processing, reduction in memory limitations for game software (e.g., firmware) implemented by game processors, and related graphics improvements. Interoperability of gaming machines and online casino management systems were being minimized by the use of the SAS protocol (a machine to system protocol developed by IGT that had become the *de facto* standard in the industry) and the cooperative efforts of the gaming device manufacturer in creating the Gaming Standards Association (GSA).

46. Additionally, ticket-in ticket out (TITO) became a widely accepted technology for casino game play. This technology first introduced in the early 1990s removed coins from the machines. Players would insert currency into an acceptor on the gaming machine and received credits on the machines to play. When finished the player would press a 'cashout' button and the gaming machine would print a ticket representing the remaining credits. The player could cash this ticket in at the casino cage or insert it into another gaming machine to continue playing.

47. TITO provided gaming designers greater flexibility in game and feature development. They were no longer restricted to nickel, quarter, or dollar denominations since TITO used cents as the value of the credits. This opened the use of greater numbers of pay lines and bets per line. Originally, slot machines had 1 play line on the center row; they then went to 3 and 5 by adding the other visible rows and the diagonals. This required a player to insert a coin to bet on each line; however, with TITO a button can be used to make bets. The number of lines capable on a 3x5 matrix of the displayed reels expanded to 273 lines accordingly, which could all easily be played by pressing a 'max bet' button.

48. Psychologically, this made it easier for players to bet more per game. They were no longer counting the money for each bet and a player that may average a 25 cent or \$1 bet on a 5-10 coin game would have no problem playing 273 cents per game -- dramatically increasing

the casino's average bet per play on the machines.

49. As early as the 1990s, one of the features used in electronic slot machines involved symbols, such as a wild or bonus symbol. These symbols could occupy portions of a reel. Additionally, these symbols could occur on any of the visible reels and be present during base games, free games, or bonus games. Here is a demonstrative example illustrating a simple “WILD” symbol displayed on a single reel of an electronic slot machine:



50. The flexibility of video design evolved in the prior art, and allowed game designers to visibly show different numbers of symbols on the screen, such as 3x3, 3x5 and 4x5 matrices with 3 reels and 3 symbols per reel, 5 reels and 3 symbols per reel and 5 reels and 4 symbols per reel respectively. Additionally, game designers began to animate symbols, morph symbols and to change symbols during the game. There are three methodologies that have been used to implement reel strip changes: insertion, replacement and overlay. Insertion adds symbols into the reel strip, which in effect lengthens it. Replacement changes the reel strip by changing symbols at various locations. Overlay takes the form of changing a wild symbol to cover all visible positions of a symbol on a reel.

51. In prior art casino gaming and other gambling devices, for example, it was well known that random number generators (RNGs) are used. As used in electronic casino games, RNGs can take the place of a dealer. For slots, the RNG was used to create a value of 1-X for

each reel where X equals the number of available game symbols and Y equals the number of reels used. The player wins if all Y symbols generated at random by the RNG (one for each of the number of reels) make a winning combination.

52. The expiration of the Telnaes patent (the foundational “virtual reel” patent, *see* U.S. Patent No. 4,448,419) in about 2004 meant that all manufacturers could now produce stepper motor (i.e., a DC-powered electric motor that divides a full rotation into a number of equal steps) driven spinning reel slot machines with the flexibility of having virtual reels with a greater number of stops than the physical reels. This allows the simulated virtual reels on the video display to be competitive with player-appealing physical spinning reel slot machines. When you consider that slot reels typically could contain up to 256 stops each, a 5-reel game provides $256 \times 256 \times 256 \times 256 \times 256 = 1,099,511,627,776$ different combinations vs. the original 20 stop 3 reels slots of $20 \times 20 \times 20 = 8000$ combinations.

53. The use of computers to randomize the selection of symbols using RNGs and RNG-related algorithms has historically been foundational to casino gaming and other gambling machines. Because players cannot influence the operation of an RNG, the outcome of any of these games is largely determined by chance.

54. By the 2000s, video game designers had much greater flexibility in adding features and functions to their games, as the number of winning combinations and configurations were increasingly limited only by the designer imagination and the mathematician calculating the odds. Game manufacturers were using variations of pay lines, scatter pays, bonus pays, bonus games, progressive games and bonus jackpots to enhance their customer appeal and differentiate themselves.

55. The concept of downloadable games by Cyberview Technology also made its debut in this time frame. These games allow a gaming platform to be used to play one of multiple types and themed games from a single machine. This gives the player the option to switch games by selecting a new one from a menu vs. having to move to another physical gaming terminal.

56. Winning combinations are typically defined by award tables which identify winning combinations and the prizes corresponding to them. Award tables may be visible to the player for each game (e.g., by pressing an “Award Table” button) before each game is played. As a simple demonstrative aid to illustrate this, if the game theme in question related to Cleopatra, a table might look like this:

5		=	10000
4		=	2000
3		=	200
2		=	10

5		=	750
4		=	100
3		=	25
2		=	2

5		=	750
4		=	100
3		=	25
2		=	2

5		=	400
4		=	100
3		=	15

5		=	250
4		=	75
3		=	10

5		=	250
4		=	50
3		=	10

57. As speed, memory size and video graphic capabilities were no longer significant limitations to game design in the 2000s, gaming companies were able to create a plethora of new and interesting games. The gaming industry was largely dedicated to developing electronic gaming devices that took traditional casino games (e.g., slots, bingo, poker) and gave them

updated game themes and enhanced graphics, with improved speed.

58. With the features in games like multiple lines, multiple bets per line, multiple frees spins, multiple bonus games with multiple screens, players enjoyed several opportunities to participate and interact with the game during the course of play. This in turn extended the game play and provided additional appeal for players over the more traditional “bet, reels spin, win/lose, time to bet again” cycle of game play.

59. This flexibility also had the side effect of creating complicated mathematical calculations to determine the correct winning percentages for a game. With greater number of winning combinations on these games, it has also created games with higher volatility. Volatility refers to the variance from the theoretical payback percentage over a given number of plays. Over the short term, the winning percentage may vary greatly both high and low -- the challenge for game designers was (and to some extent, still is) to create games with frequent winners to keep players’ interest and to keep volatility low to keep casino operators happy.

60. In a gaming machine or game terminal requiring a player to input money into the game in order to play an instance of the game, *circa* 2006, a POSITA would expect to see a physical housing built to comprise the components of the game device, including internal componentry (e.g., the circuit board game processor), the display screen, a bill acceptor and any physical buttons or touchscreen controls permitting the user to communicate with the device through one or more inputs, and the internal electronic connections between these components.

61. In such a game terminal, a single play or instance of a game starts when the player interacts with one or more buttons or touchscreen controls to place a bet. The spinning of the reels is simulated on the screen graphically for the player to see. The game ends after the reels have stopped, the outcome is displayed to the player on the screen, and a final award (if any) is

provided consistent with the award table. The machine sits idle until the next play by a player.

62. By way of background, the ‘223 Patent recites that “Amusement and entertainment type electronic games have become very popular with the public and, as their popularity has increased, several states have legalized certain types of gaming but under heavy regulation.” (Col. 1, lines 18-21).

63. The ‘223 Patent further states that “For example, the state of Ohio generally prohibits, pursuant to statutes, gambling and the use of any gambling devices.” (Id., lines 21-23).

64. In states that outlawed games of chance as illegal gambling devices, certain states did allow skill games, provided that skill predominated over chance. “However, skill-based amusement machines are permitted. To qualify as a skill-based amusement machine in Ohio, the outcome of play during the game must be controlled by the person playing the game and not by predetermined odds or random chance controlled by the machine. Some chance can be part of a skill-based amusement game, but skill must be the predominant feature.” (Id., lines 23-30).

B. Abstract of the ‘223 Patent

65. The ‘223 Patent presents an electronic game platform. The Abstract of the ‘223 Patent states:

An electronic gaming method and system with a game preview display. A field of game symbols is presented on the game display to the player as a preview for deciding whether or not to play the displayed game. If the player decides to play the game, the player selects a field element to turn the symbol displayed into a wild symbol. The player's selection of the field element for the wild symbol location is received by the game software which determines and displays each winning combination of symbols that is formed by such wild symbol location selection. A new game field can then be constructed and previewed on the game display.

(‘223 Patent, cover page, Abstract). A POSITA would understand that a game preview display

would tend to lessen the level chance in an instance of game play, while requiring a player-based selection of a field element for conversion to a wild symbol could increase the level of skill involved in game play.

C. The Tic-Tac-Fruit Wild Symbol Embodiment

66. The ‘223 Patent recites that “the present invention will be described in the context of the Tic-Tac Fruit electronic skill-based amusement game developed and licensed by Pace-O-Matic, Inc. Tic-Tac Fruit is a game loosely derived from tic-tac-toe that uses player skill to solve a puzzle.” (‘223 Patent, Col. 3, lines 59-63).

67. Tic-Tac-Fruit is therefore an embodiment used to teach the enablement of the various claims of the ‘223 Patent. “The following description of the invention is provided as an enabling teaching of the invention and its best, currently known embodiment. Those skilled in the relevant art will recognize that many changes can be made to the embodiments described, while still obtaining the beneficial results of the present invention.” (Id., Col. 3, lines 43-48).

68. Some, but not all, of the independent claims of the ‘223 Patent are directed to limitations relating to the Wild Symbol embodiment that is described in the specification. Claims 1 and 13 recite “receiving the player's selection of a field element as a location for a wild symbol and determining each winning combination of symbols that is formed by such selection.” Claim 25 recites “program instructions that receive the player's selection of a field element as a location for a wild symbol and determine each winning combination of symbols that is formed by such selection.” On the other hand, claims 44 and 51, for example, fail to mention any wild symbol and/or a player’s selection of it.

69. Figure 6 represents an “exemplary embodiment” of the processing logic of the ‘223 Patent, including the player selection of the wild symbol to complete the game. (Id., Col. 3,

lines 32-33).

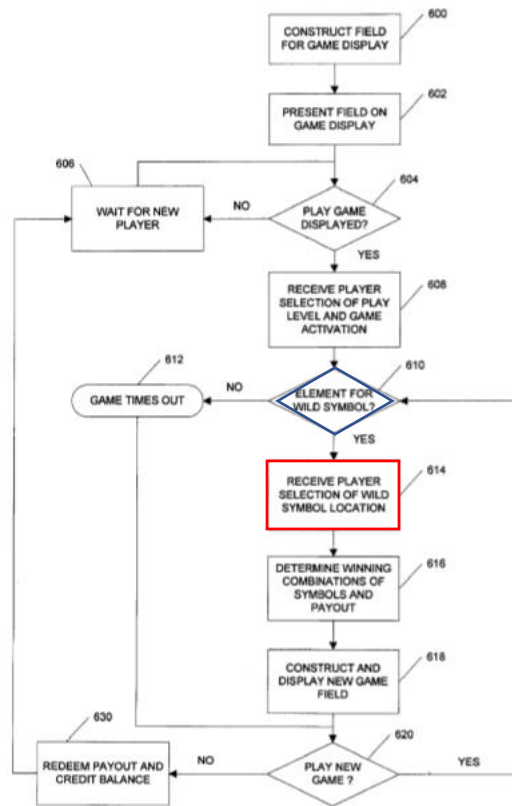


FIG. 6

70. In the Wild Symbol embodiment, “Game play begins with the player touching the ‘Play’ icon on the video screen or pressing the ‘Play/Credit’ button on the cabinet exterior. The video screen presents nine symbols in a three by three array to the player as discussed above. The object of the game is for the player to recognize the most rewarding game outcome and to select the appropriate element (i.e., field location) to change from the displayed symbol to a wild symbol in order to obtain the most valuable prize available for the displayed field.” (Id., Col. 5, lines 59-67).

71. “The similarity to tic-tac-toe extends from the use of a field or grid of nine spots or tiles arranged in a three by three array. On each play of the electronic game, the game software program constructs a puzzle or task for the player to solve. The electronic game always

incorporates at least one correct solution and sometimes generates alternative solutions that may not provide the same prize as the best solution.” (Id., Col. 3, line 63-Col. 4, line 2). Figure 1A illustrates the game field (marked in red in the figure below) that is formed by arrangement of game symbols taken from the available game symbols column (marked in blue below) in a 3x3 configuration:

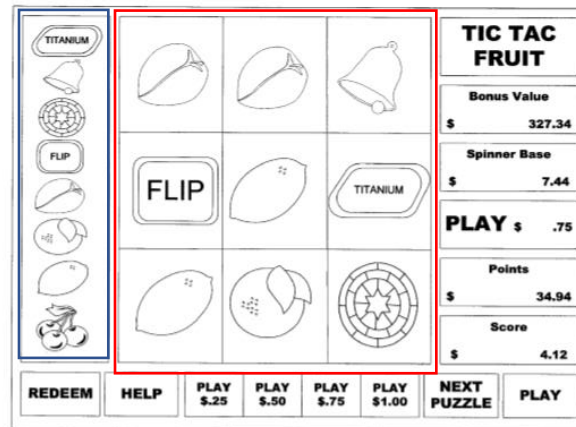


FIG. 1A

72. “With a three by three field, there are eight possible lines: three horizontal lines, three vertical lines, and two diagonal lines.” (Id., Col. 4, lines 16-18).

73. “The Tic-Tac-Fruit electronic game is a single player game. The player is presented a field completely filled with apparently random symbols selected from a set of nine symbols that includes a ‘wild’ symbol. The ‘wild’ symbol can represent any of the other symbols in the set of game symbols. The ‘wild’ symbol is identical in concept to the ‘wild card’ in card games.” (Id., Col. 4, lines 2-9).

74. “The game constructs the field so that the initial field does not place three of the same symbols in a row wherein a row is interpreted as being oriented horizontally, vertically, or diagonally.” (Id., Col. 4, lines 12-15).

75. “The player chooses the displayed symbol in the field to become the ‘wild’

symbol and the symbol(s) that it represents becomes the symbol necessary to complete a winning line(s).” (Id., Col. 4, lines 9-12). The winning lines are shown below in green:

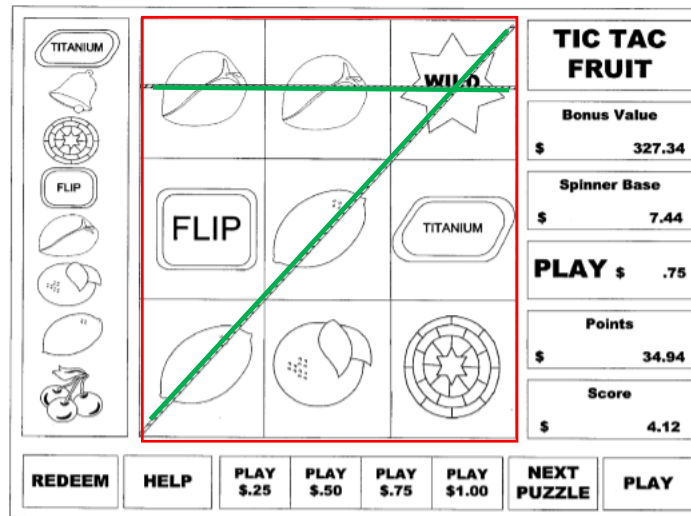


FIG. 1B

76. “The player's skills [sic, skill] enters into play as the player is given a short period of time in which to choose the ‘wild’ symbol location. Since some symbols are more valuable than others and some locations for the wild symbol may complete multiple lines, a player must quickly examine all nine locations and determine the optimal location for the wild symbol. Once the player selects a location, the game converts the symbol displayed in the element to a wild symbol and examines the field of elements for complete lines and awards points accordingly.” (Id., Col. 4, lines 26-35).

77. The Wild Symbol is not the only embodiment of the ‘223 Patent. For example, Figure 8 also represents an exemplary embodiment of the processing logic of the ‘223 Patent for the “Preview Display” embodiment that is discussed in greater detail below at paragraphs 101-109. (Id., Col. 3, lines 37-39, Fig. 8). Figure 8 and its accompanying text omit any reference to the wild symbol. (Id., Fig. 8). Moreover, the specification’s discussion of the “Preview Display” embodiment makes it apparent to a POSITA that the player selection of a wild symbol

to complete the game is merely a non-exclusive embodiment of the invention: “The preview screen of the present invention can be used in various additional embodiments. These additional embodiments can be implemented without the use of a wild symbol. In the context of the electronic game having an array of symbols as described herein, the game preview screen can be constructed and displayed without the need for a player to do anything other than to select ‘Play.’” (Id., Col. 11, lines 14-20 (emphasis added)).

D. The “Award Schedule” in the Specification is Determined in Advance of an Instance of Game Play to Link Select Symbol Combinations to Successful (Prize-based) Outcomes for Each Play of the Game.

78. The ‘223 Patent explains that “An exemplary award schedule for this version of the Tic-Tac-Fruit electronic game is provided in Table 1.” (Id., Col. 5, line 15). A POSITA would understand that the award schedule I referred to earlier as an “Award Table.” As mentioned previously, an table is a data structure defined in advance of an instance of game play that is well-known in the art to establish which array(s) of symbols will yield an outcome corresponding to a prize. This is plainly shown by Table 1 of the ‘223 Patent:

TABLE 1

Tic-Tac-Fruit (Classic)				
Symbol/Denomination	50¢	\$1.00	\$2.00	\$4.00
3 Titanium	\$250*	\$500*	\$1,000*	\$2,000*
3 Spinner	80¢	\$1.60*	\$3.20*	\$6.40*
3 Flip	*	*	*	*
3 Bell	\$2.50	\$3	\$10	\$20
3 Plum	\$1	\$2	\$4	\$8
3 Orange	8¢	16¢	32¢	64¢
3 Lemon	4¢	8¢	16¢	32¢
3 Cherry	2¢	4¢	8¢	16¢

(Id., Col. 5). A POSITA would understand from the ‘223 Patent teachings that there are select combinations in Table 1 identified under the heading “Symbol” (in red, above) and include outcomes such as 3 in a row of the various predefined game symbols (e.g., Titanium, Spinner,

Orange and Cherry) which correspond to various prize levels that can, for example, be based on different levels of denomination inputted into the gaming machine by the player just prior to playing the game (in blue, above). (See *id.*, Col. 5, Table 1 and lines 48-58). “The object of the game is for the player to recognize the most rewarding game outcome and to select the appropriate element (i.e., field location) to change from the displayed symbol to a wild symbol in order to obtain the most valuable prize available for the displayed field.” (*Id.*, Col. 5, lines 62-67).

79. By way of further illustration, the specification explains in relation to the Award Table that “[t]he higher the denomination selected, the greater the potential winnings for each of the winning combinations. For example, if the player selects fifty cents as the denomination for the next play of the electronic game, and completes a line with three titanium symbols, he will win the equivalent of \$250.00 in points. Had he successfully played the same game with a \$4.00 denomination of play, his winnings would have been the equivalent of \$2,000.00 in points.” (*Id.*, Col. 5, lines 19-26).

E. Constructing the “Completely Filled” Game Field

80. “The similarity [of Tic-Tac-Fruit] to tic-tac-toe extends from the use of a field or grid of nine spots or tiles arranged in a three by three array. On each play of the electronic game, the game software program constructs a puzzle or task for the player to solve.” (‘223 Patent, Col. 4, lines 62-67).

81. “In one aspect of the invention, an electronic gaming method with a game preview display is provided to a player. A game field is constructed having a plurality of elements on a game display wherein each element is filled by a game symbol from a plurality of available game symbols.” (*Id.*, Col. 2, lines 12-14).

82. “The player is presented a field completely filled with apparently random symbols selected from a set of nine symbols that includes a ‘wild’ symbol.” (Id., Col. 4, lines 4-6). A POSITA would understand that a “complete field” is a game field where all positions on the field are occupied by a symbol. Elsewhere, the specification refers to a “complete line” or “completing a line” which in context, a POSITA would understand to be synonymous with a “winning line.” (Id., Col. 4, lines 11-12, 29-30, 38-39 and 42-43; id., Col. 5, lines 21-32).

83. “Since there are eight symbols and nine spots on the field, the total number of combinations is approximately 134 million. However, since a field cannot have any initial complete lines, the total number of initial combinations is reduced to approximately 118 million.” (Id., Col. 4, lines 36-40).

84. “Valid fields are determined by using an embedded computer processor to iterate through and test each combination to determine if it has any complete lines. If any lines are complete, the combination is not counted or used.” (Id., lines 40-44). As used in this passage, a POSITA would understand the reference to “fields” to refer to an array of predetermined game symbols. Further, in terms of the specification and Figures 1A and 1B, a POSITA would understand “complete” lines to be synonymous with a line comprising three of the same symbol in a row, either horizontal, vertical or diagonal.

85. According to the specification, the game software determines the initial “no-line” fields and “tests each of these for potential winners where all fields that can potentially complete a line are counted.” (Id., Col. 4, lines 45-47). A POSITA would understand “no-line” fields to be game fields that do not have a complete line.

86. “Since there are over 100 million compliant field combinations, the player must examine each lineup and symbol values to determine the best location for selecting the wild

symbol on the field displayed.” (Id., lines 47-50). A POSITA would understand the “lineup” of predetermined game symbols to be the game field, and would further understand the reference to “symbol values” to refer to the values associated with a winning combination of each symbol in Table 1. Thus, the values associated with 3 bells is higher than the values associated with 3 cherries.

87. “The steps involved in constructing a field in this electronic game are as follows:

1. chose [sic, choose] the number of winning lines (i.e., 1, 2, 3, 4);
2. chose [sic, choose] the orientation of each of the winning lines (i.e., horizontal, vertical, or diagonal);
3. chose [sic, choose] the symbols for each of the lines (i.e., cherries, plums, bells, etc.);
4. fill in empty spots with random symbols; and
5. test the complete field for compliance with the goals set by steps 1 and 3 and repeat the construction process if compliance fails.”

(Id., Col. 4, lines 53-64). A POSITA would understand based on this multistep sequence of steps that, in the preferred embodiment of the electronic Tic-Tac-Fruit game, the game field is made from multiple game symbols selected from a pool of predetermined game symbols, based on the number of winning lines for the game field (up to 4), whether the winning lines will be horizontal, vertical and/or diagonal, which symbols will be used in the winning lines, the random selection of non-winning game symbols to complete the other places on the game field, and the iterative testing of the number of winning lines and the symbols of the winning lines to verify compliance with game field construction criteria. (See also FIG. 5, Steps 500-502, and related text at 9:53-64, which also describes this sequence of steps). A POSITA would appreciate that the iterative process described in the specification is: TEST compliance with STEP1; TEST

compliance with STEP3; IF either TEST fails, THEN repeat STEP1. ELSE game field is completed.

88. The completely-filled game field is displayed to the player. “The video screen presents nine symbols in a three by three array to the player as discussed above.” (Id., Col. 5, lines 61-62).

89. Figure 6 represents exemplary logic of the game processor. (Id., Col. 3, lines 32-33). Figure 6 (step 600) represents the function of constructing the game field comprising the array of predetermined game symbols. “Processing begins, as indicated in step 600, with the construction of a field of elements for a game display wherein each element is filled by a game symbol from the game symbols available.” (Id., Col. 10, lines 22-26).

90. A POSITA would understand from Figure 6 and the specification references of the ‘223 Patent that the processing logic of software (which a POSITA would understand to include firmware when applied in the context of a game processor) for constructing the game field for the interactive Tic-Tac-Fruit game display calls for the iterative steps of selecting a game symbol from the game symbols available (see par. 87) to fill in each of the nine spaces of a 3 x 3 array and transmitted to the video screen.



FIG. 6

FIG. 6 illustrates the processing logic for an exemplary embodiment having a game preview display. Processing begins, as indicated in step 600, with the construction of a field of elements for a game display wherein each element is filled by a game symbol from the game symbols available. As

(10:22-26)

A game field is constructed having a plurality of elements on a game display wherein each element is filled by a game symbol from a plurality of available game symbols. The game

(2:12-14)

The Tic-Tac-Fruit electronic game is a single player game. The player is presented a field completely filled with apparently random symbols selected from a set of nine symbols that includes a “wild” symbol. The “wild” symbol can represent

(4:4-6)

the cabinet exterior. The video screen presents nine symbols in a three by three array to the player as discussed above. The

(5:61-62)

F. “Determining a Winning Combination”

91. There are numerous passages in the ‘223 Patent specification that a POSITA would recognize as teaching the determination of a winning combination. The first is the “Award Table” data structure (as described above in paragraphs 78-79) that establishes which array of symbols yields an outcome corresponding to a prize.

92. Next, the specification states that “Valid fields are determined by using an embedded computer processor to iterate through and test each combination to determine if it has any complete lines. If any lines are complete, the combination is not counted or used.” (‘223 Patent, Col. 4, lines 40-44 (emphasis added)). A POSITA would understand that this reference teaches to determine a winning combination (a complete line, for example, 3-in-a-row) in the process of completing the game field, to make sure that the game field in the wild symbol embodiment discussed above does not have any winning combinations prior to the user’s selection of the location of the wild symbol.

93. Referring to Figure 8, the specification states that “The player can observe the displayed game for any length of time before deciding whether or not to play the displayed game in decision step 804, in order to advance to the next game preview display. If the result of the play of the game is a winning combination, the game software determines the winnings and displays the winning outcome to the player, as indicated in step 808.” (Id., Col. 12, lines 5-11 (emphasis added)). Because of the specification’s teachings relating to Table I in column 5 of the specification, a POSITA would understand that the Award Table data structure is able to be referenced by an instruction processed by the game processor in step 808 to determine to what extent any game symbol arrays are associated with winning a prize (for example, in Step 808, a payout).

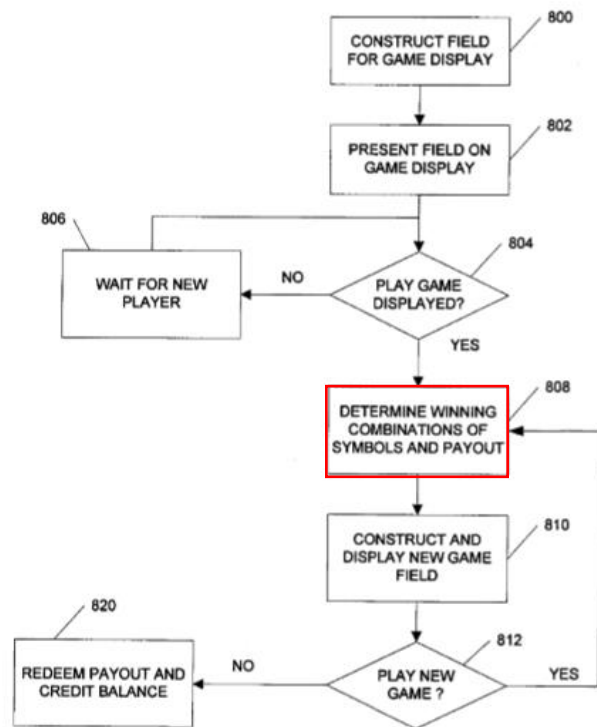


FIG. 8

94. Furthermore, claim 13 uses the phrases “wherein the game symbols for each element are automatically determined such that there is at least one winning combination for

each play of the game but there is no winning combination without player interaction with the game display” and “receiving the player's selection of a field element as a location for a wild symbol and determining each winning combination of symbols that is formed by such selection” to refer to the wild symbol embodiment where the game terminal determines the winning combination that is formed after the user has selected the location of the wild symbol on the game field. Claim 25 similarly recites “wherein the game symbols for each element are automatically determined such that there is at least one winning combination for each play of the game but there is no winning combination without player interaction with the game display” and “program instructions that receive the player's selection of a field element as a location for a wild symbol and determine each winning combination of symbols that is formed by such selection” to address the wild symbol embodiment where the game terminal determines the winning combination that is formed after the user has selected the location of the wild symbol on the game field.

95. In the wild symbol embodiment described in the preceding paragraph, a POSITA would understand that the ‘223 Patent teaches the determination of the winning combination both before and again after the player selects the location of the wild symbol. This is supported by the following statement in the specification: “Essentially, the Tic-Tac-Fruit electronic game presents a task whereby the player must select the appropriate field element to replace with a wild symbol in an effort to obtain the highest value game outcome offered by the device. The prize is determined by a random selection from a finite pool of available prizes. The device selects the quantity of lines that will present a winning outcome. Prizes may be presented on one, two, three, or four lines in a single game play. The device selects the level of prize(s) to be awarded. A software algorithm assesses the arrangement of the prize(s) to be offered to assure

that no other, more valuable prizes will inadvertently be presented. The key symbol needed to obtain the highest value prize is replaced with a non-winning symbol prior to display to the player.” (Id., Col. 6, lines 19-32 (emphasis added)). A POSITA would understand that the game terminal cannot select the level of prize to be awarded except through the Award Table’s association between winning combinations and associated prizes, and this passage indicates that it determines the most valuable winning combination (here, a 3-in-a-row combination) for the game to be played and then replaces one of the symbols in the winning line with a non-winning symbol.

G. “Testing the Game Field ...” in the Specification and Prosecution History

96. During prosecution, the Patent Owner stated that “Claims 6, 19 and 32 have been amended to clarify the testing step. Support for the amendment is found at least in Paragraph 39. Testing the constructed field before presenting the field to the player on the game display ensures that a winning combination more valuable than the selected winning combinations is not generated inadvertently in completing the field.” (POM000210, 1/26/2010 Office Action Response, p. 28). This limitation is henceforth abbreviated as the “Testing Limitation.”

97. Paragraph 39 could, at least in theory, relate to numbered paragraph 39 of the as-filed application or numbered paragraph 39 of the published patent application (US 2007/0232384 A1). However, in looking at paragraph 39 of the as-filed application, it does not disclose or support the Testing Limitation. Instead, as-filed paragraph 39 refers to certain steps shown in Figure 2 related to “determining the remaining number of plays . . . that are available at different denominations (i.e., levels) of play.” (See POM000038-39, Pros. History file at pages 14 and 15 of application). This paragraph concerns testing a game field.

98. On the other hand, to a POSITA, Paragraph 39 of the specification appearing in the published application explains the meaning of the Testing Limitation to a POSITA. It states:

[0039] Essentially, the Tic-Tac-Fruit electronic game presents a task whereby the player must select the appropriate field element to replace with a wild symbol in an effort to obtain the highest value game outcome offered by the device. The prize is determined by a random selection from a finite pool of available prizes. The device selects the quantity of lines that will present a winning outcome. Prizes may be presented on one, two, three, or four lines in a single game play. The device selects the level of prize(s) to be awarded. A software algorithm assesses the arrangement of the prize(s) to be offered to assure that no other, more valuable prizes will inadvertently be presented. The key symbol needed to obtain the highest value prize is replaced with a non-winning symbol prior to display to the player.

This language appears in the ‘223 Patent, as issued, at Col. 6, lines 19-33.

99. The ‘223 Patent at Col. 6, lines 19-33, is read and understood by a POSITA with the Award Table in mind. Referring to Table 1 of the specification of the ‘223 Patent, the Award Table defines the winning combinations in terms of an array of symbols for each game in advance of an instance of game play, and associates each winning combination with a prize. Given the teachings of the Award Table and the role that a POSITA would understand the Award Table to play in an electronic game, a POSITA would understand the Testing Limitation to refer to observing or examining an array of symbols to ensure that the anticipated successful outcome or prize corresponding to the array is not superseded by the award of a more successful outcome or better prize in making the field from the plurality of predetermined game symbols.

100. The language in the foregoing paragraph of the ‘223 Patent specification stating “the device selects the quantity of lines which will present a winning outcome” and the language stating “Prizes may be presented on one, two, three, or four lines in a single game play”, at Col.

6, lines 25-27, both reinforce the inextricable linkage created by the Award Table between a given array of symbols and a successful outcome or prize that the electronic game anticipates awarding for it.

H. The Tic-Tac-Fruit “Preview Display” Embodiment

101. A POSITA would recognize that the specification of the ‘223 Patent recites several different embodiments for previewing a game to be played to the player before the player makes a decision whether to play.

102. First, in connection with FIGURE 6, which teaches processing logic for combining the wild symbol embodiment of the ‘223 Patent with the preview screen embodiment, the specification states that “the field is presented to the player on the game display as a preview of the game in step 602. In one embodiment, the player can select from a plurality of game preview displays, with each game preview being associated with a different play level. Any potential player can observe the game display for as long as desired before making a decision to play the displayed game in decision step 604.” (‘223 Patent, Col. 10, lines 37-44).

103. The specification states that “The preview screen of the present invention can be used in various additional embodiments. These additional embodiments can be implemented without the use of a wild symbol.” (Id., Col. 11, lines 14-15). Figure 8 teaches a second embodiment describing the use of a preview without necessitating a wild symbol. (Id., Col. 12, lines 5-16) (describing the use of a “Next Puzzle” button which the player can touch to display the next game board).

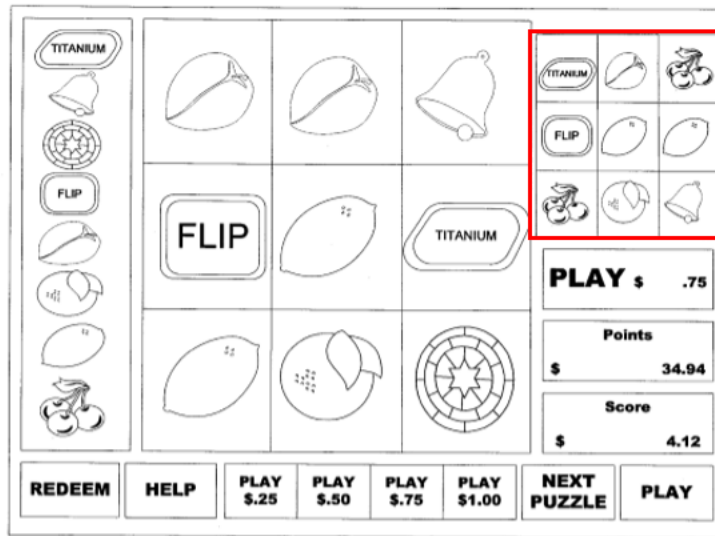
104. Recalling the inventor’s objective of producing a game platform that is not an illegal gambling machine (where chance predominates over skill), a POSITA would understand from this teaching in the specification that there are many ways to implement a preview screen

feature into an electronic game in order to reduce the role of chance.

105. A third embodiment or example of a preview screen to reduce the role of chance is a screen showing the player the outcome of the next game before it is played. “In the context of the electronic game having an array of symbols as described herein, the game preview screen can be constructed and displayed without the need for a player to do anything other than to select ‘Play.’ In this case, the preview screen could actually be the results screen, displaying the game outcome.” (Id., Col. 11, lines 17-22).

106. The specification then states that “Such a preview screen could display a winning or a non-winning combination.” (Id., Col. 11, lines 22-23 (emphasis added)). A POSITA would therefore understand that a fourth example of how to implement a preview screen could be to preview a specific combination from the next game for the user to see.

107. A fifth embodiment of the preview screen feature is a preview of the next game board for the user to see while the user is playing a current game. “A preview of the next game could be displayed adjacent to the current preview screen. In order to get to the next game, the player would have to play the currently previewed game. An example of such a game display is depicted in FIG. 7 in which the current game is previewed on the main portion of the display and the next game (e.g., at the same play level or denomination) is displayed adjacent to the current game display in the upper right portion of the display.” (Id., Col. 11, lines 27-34). Figure 7 illustrates this exemplary embodiment of the preview screen as follows:



Player can see the upcoming game board

FIG. 7

108. A sixth example of the preview screen is to have actual or simulated spinning reels displaying one or more lines of symbols for the player to see before deciding to play the game in question. “The preview display could also be implemented in other forms of electronic or electromechanical games. For example, it could be used in the context of an electronic or electromechanical slot machine having a plurality of spinning reels (actual or simulated) and displaying one or more lines of symbols. The displayed game could actually be the result which may or may not be a winning combination of symbols.” (Id., Col. 11, lines 43-49).

109. To a POSITA, each of these examples serves to reduce the role of chance by previewing to the player something unique about the next game to be played that the player otherwise would not know, so that the player makes the decision whether to play the next game based on information rather than happenstance. For example, “The player would play the displayed game knowing the outcome in order to have the electronic gaming system provide the next game preview display.” (Id., Col. 11, lines 23-26). “The player would play the displayed game, knowing its result, in order to preview the next game.” (Id., Col. 11, lines 50-51).

I. Claim 44.

110. I understand that claims 13-24, 44-50, and 64-69 each recites “game processor.” Of these claims, counsel for Plaintiffs has advised me that claims 13-24 and claims 64-69 are not being asserted in the case.

111. Claim 44 of the ‘223 Patent is asserted in the case. It recites:

44. An electronic gaming system comprising:

an electronic game terminal including a touch screen display;

a game processor for generating an interactive electronic game on the game terminal, the game processor configured for:

constructing a field having a plurality of elements for the interactive game display

wherein each element includes a game symbol from a plurality of predetermined game symbols;

determining at least one winning combination for each play of the game;

testing the game field prior to displaying the game to the player to ensure that a winning combination more valuable than the determined winning combination is not generated inadvertently in completing the field;

automatically displaying an actual game to be played on the touch screen game display to a player prior to initiating activation of game play;

determining if the player has decided to play the displayed game; and

displaying an outcome resulting from play of the displayed game.

112. With regard to claim 44, I have been asked to opine whether the term “game processor” in the context of claim 44 imparts structure to a POSITA, or whether it is a “nonce term.”

113. Counsel has advised me, and I therefore understand, that a “nonce term” is a term lacking indication of structure because it sets forth what is essentially a generic “black box” term like “means,” or “mechanism.”

114. For at least the following reasons, a POSITA would understand that a “game processor” is structure, and is not a nonce term.

115. A POSITA would understand that a game processor is a specific subclass of processors. Comparing the definitions of “processor,” “means” and “mechanism” is instructive:

Term	Definition
Processor	1. See microprocessor. 2. See CPU. ¹
Means	A method or way of doing something. ²
Mechanism	A part of a machine, or a set of parts that work together. ³

116. A POSITA would not expect to find generic terms like “means” and “mechanism” defined in technical dictionaries in the computing field because they are so nondescript. A POSITA encountering “means” or “mechanism,” without more, cannot visualize any structure defined by the term. However, as the foregoing shows, “processor” is defined in technical dictionaries, and a POSITA can readily visualize what it is. It is understood generally as a class of devices – microprocessors and CPUs. Unlike means and mechanism, these are a class of specific devices. The same technical dictionary provides definitions of microprocessor and CPU.

¹ See *Dictionary of Computer Words* (1995) at 226.

² See <https://dictionary.cambridge.org/us/dictionary/english/means> (accessed June 24, 2020).

³ See <https://dictionary.cambridge.org/us/dictionary/english/mechanism> (accessed June 24, 2020).

117. *The Dictionary of Computer Words* (1995), at 175, defines microprocessor as follows:

microprocessor An *integrated circuit* that contains the entire *CPU* (central processing unit) of a computer on a single chip. When referring to personal computers, the terms “microprocessor” and “central processing unit” are often used synonymously. Microprocessors manufactured by Intel are generally used in *IBM PC* and compatible computers. Motorola microprocessors are used in Macintosh computers and in Hewlett-Packard *workstations*.

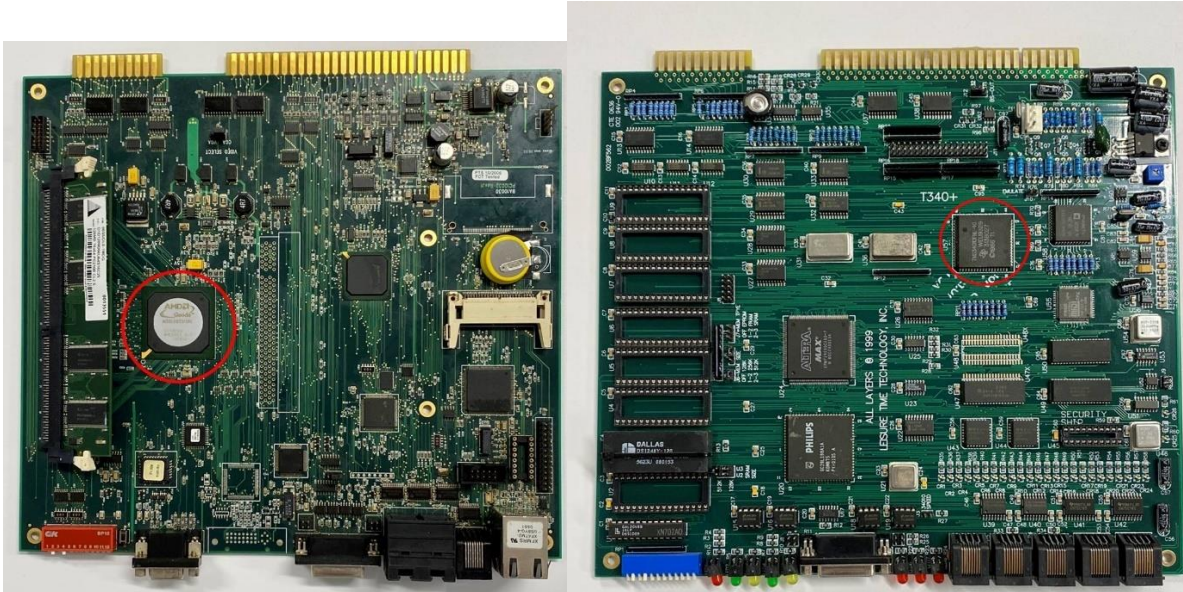
Microprocessors are distinguished on the basis of power and speed. Power is measured by data width; that is, the number of *bits* of data the microprocessor can process at one time. Often, it is useful to distinguish between *register* width, or the number of bits of data the computer can process within its CPU at one time, and *bus* width, the number of bits of data that can be transferred between the CPU and other components, such as *expansion boards*, *printers*, or *disk drives*, at one time. Speed is specified by the *clock speed* given in *megahertz* (MHz). A microprocessor that runs at 66MHz executes 66 million cycles per second. Clock speed determines how fast a computer can execute instructions. The higher the clock speed and the bigger the data width, the more powerful the microprocessor. Table 16 (pp. 173–174) compares the features of various microprocessors. See also *CISC*, *Intel microprocessors*, *Motorola microprocessors*, *PowerPC*, *RISC*.

118. *The Dictionary of Computer Words* (1995), at 58, defines microprocessor as follows:

CPU Abbreviation of **central processing unit**. The part of a computer that interprets and executes instructions. A *mainframe* or a *minicomputer* has a CPU consisting of one or more *printed circuit boards*, but the CPU of a *personal computer* or small *workstation* consists of a single *chip* called a *microprocessor*.

The CPU fetches, decodes, and executes instructions, and transfers information to and from other components, such as *disk drives*, *expansion boards*, or the *keyboard*, over the computer’s *bus*, its main data highway. The part of the CPU known as the Arithmetic Logic Unit (ALU) performs all arithmetic and logic operations on data. The CPU’s Control Unit coordinates the steps necessary to execute each instruction. It tells the other parts of the CPU what to do and when. The data *registers* of the CPU function as a scratch pad for the ALU and as working memory for the CPU. In some instances, *CPU* is used more broadly to include *main memory*, or *RAM*. See illustration at *computer*.

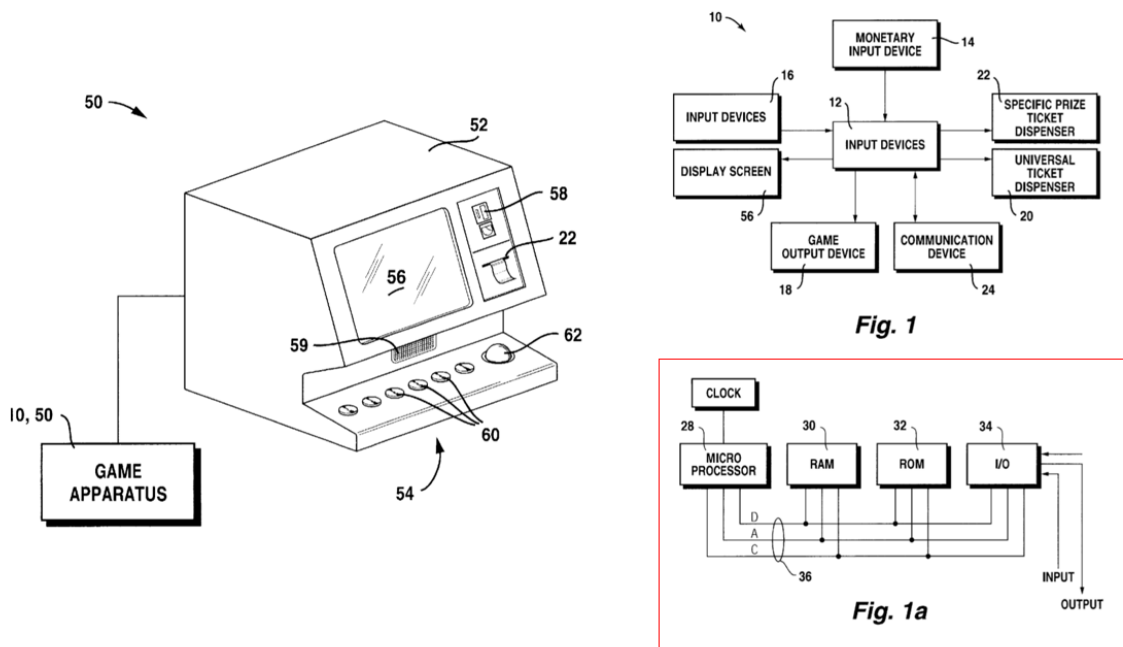
119. To illustrate the structural nature of the processor further, I also include the following demonstrative aids to illustrate how a POSITA would visualize the processor (circled in red) on a printed circuit board:



120. Furthermore, “game processor” is a term known to a POSITA and commonly understood to represent a subclass of processors: customized, embedded processors adapted to and employed by the gaming industry in game device manufacture. To a POSITA, these game processors are integrated circuits that have the internal structures of other CPUs/MPUs – e.g., an arithmetic logic unit (i.e., the “ALU,” a digital electronic circuit that performs arithmetic and bitwise operations on integer binary numbers) and a control unit (i.e., the digital electronic circuit that feeds directions to memory, ALU, input switches on the game terminal and output devices such as the video screen and audio speakers). Further, to a POSITA, these game processors are known to be adapted to specific demands of the gaming industry (e.g., speed, security, high-resolution graphics, CD quality sound). In addition, it would have communication interfaces and specific input/output circuitry to connect to and communicate with the necessary I/O devices such as: touch screens, bill validators, buttons, displays, lights and sounds.

121. U.S. Patent No. 5,882,258 to Kelly (applied for in 1997, “Kelly”) for a “Skill-Based Card Game” is an example of a game designer using “game processor” as a term of art consistent with the understand I conveyed in the previous paragraph.

122. Kelly teaches a game apparatus having internal components, including a diagram of a game processor at Figure 1a (in red box below):



123. Kelly states that Fig. 1a “is a block diagram of a game processor used in the game apparatus of FIG. 1.” (Kelly, FIG. 1; see also related text at Col. 7, lines 43-60). The game processor componentry displayed in the block diagram include the clock, microprocessor (including memory (RAM//ROM)) and input/output circuitry for communicating the inputs and outputs of the game apparatus. Bus paths 36 are shown in the diagram connecting these internal components of the game processor. “The user input can provide a particular game command to the game processor 12, and the game processor interprets the commands and influences game states and game events in the game process accordingly.” (Kelly, Col. 5, lines 2-6).

124. Kelly emphasizes that the “game processor” has special features because it is a

subclass of processor. “Game processor 12 utilizes appropriate display drivers, graphics chips, and/or other well-known components to display and update images on the display screen for implementing a game and providing information for a redemption system, if present.” (Id., Col. 5, lines 24-28). “Images can be displayed and updated on display Screen 56 by game processor 12 or other controllers by methods well known to those skilled in the art.” (Id., Col. 8, lines 48-50). Kelly’s use of “game processor” to display and update images on the video screen is consistent with the ordinary meaning and understanding of a POSITA.

125. In short, a POSITA would have known that by 2006, virtually every gaming device used in the gaming industry for Class II & Class III gaming (as defined by National Indian Gaming Act) would contain a game processor as I have described it. Since at least the late 1990’s, companies have been marketing gaming boards with embedded processors for smaller manufactures to use in their games. Many large manufacturers build their own game processors for use in their proprietary games.

126. “Game processor” is mentioned two times explicitly in the ‘223 Patent specification. The ‘223 Patent states: “In another aspect of the invention, a system is provided for electronic gaming with a game preview display. A game processor generates an electronic game display on a game terminal with a plurality of options selectable by a player. The game processor includes: (1) a component for constructing a field having a plurality of elements for a game display with each element being filled by a game symbol from a plurality of available game symbols, wherein the game symbols for each element are automatically determined such that there is no winning combination without player interaction; (2) a component for presenting the field of game symbols to the player as a preview for deciding whether or not to play the displayed game; (3) a component for receiving the player's selection of a field element as a

location for a wild symbol and determining each winning combination of symbols that is formed by such selection; and (4) a component for displaying each winning combination of symbols on the field of game symbols.” (‘223 Patent, Col. 2, lines 29-45).

127. There are other references in the ‘223 Patent that a POSITA would also find implicitly reference or suggest a game processor:

- (a) “Valid fields are determined by using an embedded computer processor to iterate through and test each combination to determine if it has any complete lines. If any lines are complete, the combination is not counted or used.” (Id., Col. 4, lines 40-43 (emphasis added));
- (b) Figures 2, 5, 6 and 8 are each separately described as illustrations of “processing logic” that a POSITA would understand in the context of the ‘223 Patent to require a game processor to implement. (Id., Col. 3, lines 18-39);
- (c) the specification descriptions of each of the foregoing figures are replete with references to “processing” and “processing logic” that a POSITA would understand in the context of the ‘223 Patent to require a game processor to implement.

128. Based on the totality of references in the specification, the ’223 Patent employs a game processor in the same way a POSITA would normally understand and apply it. Game processor is a term widely used and known to a POSITA to represent a subclass of processors: embedded⁴ processors adapted to and specially employed by the gaming industry in game device

⁴ By “embedded” above, I mean that a POSITA would understand that each game processor is typically embedded on a gaming circuit board that is physically located inside the game terminal to regulate the inputs and outputs of the terminal equipment, including touch switches and other manual switches on the terminal, and the presentation of graphics on the video screen (display).

manufacture. To a POSITA, these game processors are integrated circuits that have the internal structures of other CPUs/MPUs – e.g., an arithmetic logic unit (i.e., the “ALU,” a digital electronic circuit that performs arithmetic and bitwise operations on integer binary numbers) and a control unit (i.e., the digital electronic circuit that feeds directions to memory, ALU, input switches on the game terminal and output devices such as the video screen and audio speakers) – and are known to be adapted to specific demands of the gaming industry (e.g., speed, high-resolution graphics, CD quality sound). In addition, it would have communication interfaces and specific input/output circuitry to communicate with the necessary I/O devices such as: touch screens, bill validators, buttons, displays, lights and sounds.

129. A POSITA would further understand the structural arrangements of the game processor (e.g., descript configuration rules) in claim 44 based on the plain language of the claim itself, which is algorithmic in nature (see discussion below), and which describes the objective (“for generating an interactive electronic game on the game terminal”), and specific inputs “determining if the player has decided to play the displayed game”) and outputs to other specific structure of the game terminal (“automatically displaying an actual game to be played on the touch screen game display”). A POSITA could create such a game processor using a variety of techniques that are within the ordinary level of skill in the art.

J. Claim 51.

130. Claim 51 of the ‘223 Patent recites:

51. A computer program product for electronic gaming when executed on a game processor, the computer program product comprising a computer readable storage

This is true of the overwhelming majority, meaning virtually all if not all game processors that I encountered in my career between 1975 and 2006.

medium having computer readable code embedded herein, the computer readable storage medium comprising:

program instructions that construct a game field having a plurality of elements for an interactive touch screen game display on an electronic game terminal wherein each

element is filled by a game symbol from a plurality of predetermined game symbols;

program instructions that determine at least one winning combination for each play of the game;

program instructions that test the game field prior to displaying the game to the player to ensure that a winning combination more valuable than the determined winning

combination is not generated inadvertently in completing the field;

program instructions that automatically display an actual game to be played on the touch screen game display to a player prior to initiating activation of game play;

program instructions that determine if the player has decided to play the displayed game;

and

program instructions that display an outcome resulting from play of the displayed game.

131. With regard to claim 51, I have been asked to opine whether the phrase “computer program product comprising a computer readable storage medium having computer readable code embedded herein, the computer readable storage medium” comprising “program instructions ...” in the context of claim 51 imparts structure to a POSITA, or whether it is a “nonce” phrase.

132. To a POSITA, the terms “computer readable code” and “program instructions” also suggests structure. For example, the *Microsoft Computer Dictionary* defines “code” as a “Program instructions. Source code consists of human-readable statements, written by a

programmer in a programming language. Machine code consists of numerical instructions that the computer can recognize and execute and that were converted from source code.” *Microsoft Press Computer Dictionary* (5th ed. 2005), at 106.

133. Likewise, the *Microsoft Computer Dictionary* defines “instruction” as “an action statement in any computer language, most often in machine or assembly language. Most programs consist of two types of statements: declarations and instructions.” *Id.* at 276. I further understand that the Plaintiffs have put forth a construction of “program instructions” as “conventional commands that can be executed by a computer.” This definition/construction comports with the understanding of a POSITA, as illustrated by the computer dictionary definition of “instruction” above.

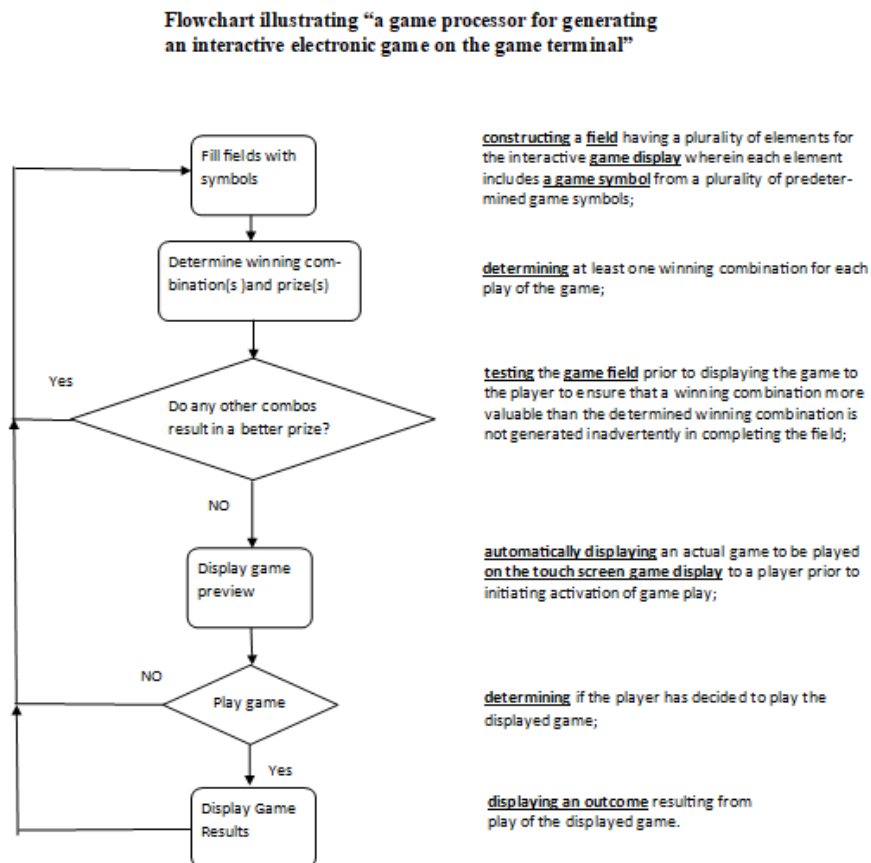
134. I also understand from counsel that all parties have agreed that for purposes of claim construction, “computer readable code” as used in claim 51 is to be construed as “code in a form that can be executed by the computer.”

135. To a POSITA, “computer readable code” and “program instruction” are not “nonce” words. A POSITA would understand the structural arrangements of the claimed computer program of claim 51 comprised of specific code components (e.g., descript program instructions explaining the various computer operations performed through the instructions) in claim 51 based on the plain language of the claim itself, which is algorithmic in nature (see discussion below), and which describes the objective of the computer program, with specific input and output. A POSITA could create such code using a variety of different programming languages.

K. Algorithm

136. An algorithm is “a finite sequence of steps for solving a logical or mathematical problem.” *Microsoft Computer Dictionary*, 5th ed. (2005), at 23. A POSITA understands that algorithms can vary considerably in their level of simplicity or complexity.

137. I have reviewed the language of claims 44 and 51 with a view toward discerning whether there is an algorithm in one or both claims. In both claims, I find what a POSITA would regard as an algorithm for generating an interactive electronic game on the game terminal. To a POSITA reading the language of these claims in view of the specification of the ‘223 Patent, the algorithm would be understood as follows:

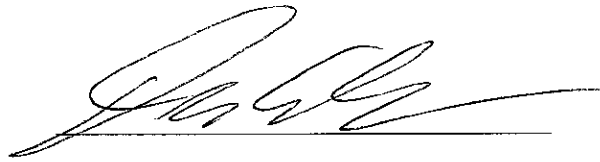


138. A POSITA would regard the foregoing as an algorithm for electronic gaming using a game processor.

139. I reserve the right to supplement the opinions in this declaration based on subsequent testimony or facts revealed through discovery, including additional documents and the testimony or reports of other witnesses, including any other experts.

140. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed this 0 day of July 2020 in Walnut Grove, Missouri.

A handwritten signature in black ink, appearing to read "D. Crevelt", written over a horizontal line.

Dwight E. Crevelt

Appendix A - Materials Reviewed

U.S. Patent No. 7,736,223
File History for U.S. Patent No. 7,736,223
United States Published Patent Application US 2007/0232384 A1
Tic-Tac-Fruit: An Analysis by Clay Turner, Nov. 15, 2004
Letter to Kurt Gearhiser by Nick Farley dated Mar. 7, 2005
Pace Affidavit and Background (POM000499-500)
U.S. Patent No. 4,448,419
U.S. Patent No. 5,882,258
Dictionary of Computer Words (1995) at 58, 175, 226
Microsoft Computer Dictionary, 5th ed. (2005) at 23, 106, 276
<https://dictionary.cambridge.org/us/dictionary/english/means> (accessed June 24, 2020)
<https://dictionary.cambridge.org/us/dictionary/english/mechanism> (accessed June 24, 2020)
Plaintiff's Proposed Terms for Construction and Proposed Constructions dated June 11, 2020
Defendant's Proposed Terms for Construction and Proposed Constructions dated June 11, 2020
Defendant's Initial Invalidity Contentions dated June 4, 2020

EXHIBIT A

Dwight E. Crevelt

502 E 560th Rd
Walnut Grove MO 65770
702-858-8294

Dwight Crevelt is a Businessman, Engineer and Author with over 40 years experience in the gaming industry, including extensive work with Gaming Regulators and Agencies worldwide. Dwight also provides expert witness services for patent infringement cases.

Dwight is co-author of the books Slot Machine Mania and Video Poker Mania. Also, he is believed to be the author of the first Computer Program Disassembler, it was written for CDC160/NCR310 in 1971. He holds the 6 patents as inventor for Cashless and Progressive Gaming Systems.

Education:

Received BS in Computer Engineering from Iowa State University - 1979
Attended the US Naval Academy - 1975-77
Attended University of Las Vegas - 1973-74
Graduated from Chaparral High School - 1975

Experience:

Crevelt Computer System, Inc. - President/Owner 1977-present
Gaming Business Consulting/Engineering Development, Expert Services

7C's Winery – Co-owner 2005- Present

FootTraffic Promotional Gaming LLC - Partner 1998- 2013
Provides promotional games to Casinos, Retail and Trade Shows

International Game Technology -
Product Manager Cashless Applications 1995-1996
Prepare business plan and strategies for implementing cashless gaming products. Including the use of Smartcards, ATM/Debit cards and Internet Gaming.

Manager/Director Las Vegas Engineering 1991-1995
Responsible for design, development and implementing player tracking and accounting systems. This included responsibility for the development, deployment and support of over 150 installations of the SMART System and the first cashless system utilized by Caesar's Palace, Las Vegas.

Electronic Data Technologies - Special Projects 1988-1991
Technical Gaming Regulatory Liaison
Evaluate new technologies and prepare business plans for their implementation.

Crevelt Computer System - IGT/EDT Contract 1984-1986
Designed and developed the first complete on-line Player Tracking System.

Experience: (continued)

Mills-Jennings - Director of Corporate Research 1981

Primary Gaming Regulatory Liaison

Assembled an R&D team for the development of a complete line of video gaming machines and an on-line accounting system.

Sircoma (IGT) - computer engineer 1979-80

Developed various gaming machines.

Technical Gaming Control Liaison

United Audio Visual - software engineer 1977

Developed Audio / Video Controllers

Gamex Industries - software engineer 1974-75

Designed and developed an on-line Slot Accounting and Monitoring System.

Maintained Gamex's on-line Casino Table Game Accounting System.

Member of the following organizations:

US Navy League

National Eagle Scout Association

American Philatelic Society

Listed in the following Biographies:

Marquis Who's Who in the West

Marquis Who's Who in the World

Marquis Who's Who in Finance and Industry

Marquis Who's Who of Emerging Leaders in America

IBC Men of Achievement

EXHIBIT B

Legal Actions Involving Dwight Crevelt Testimony Since July 2017

Aruze Gaming in Universal Entertainment vs Aruze Gaming
No. 2:18-cv-00585 (D. Nev.) (testified by declaration May 24, 2019)